

Proposal and progress documentation of 2D Ising model development

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1 Motivation

This is a developing code aiming to calculate the average observable values of Ising model motivated by the high degree of freedoms from statistical physics.

2 Theory

2.1 Statistical mechanics: Basics

Consider a lattice with **set** Λ lattice sites. For each lattice site $k \in \Lambda$, the discrete variable σ can take $\sigma_k \in \{+1, -1\}$.

A spin configuration can also be expressed as $\sigma = \{\sigma_k\}_{k \in \Lambda}$.

3 Method